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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,915	07/30/2003	Akihiko Takeo	008312-0305286	6092
909	7590	10/12/2005	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP P.O. BOX 10500 MCLEAN, VA 22102			WATKO, JULIE ANNE	
			ART UNIT	PAPER NUMBER
			2653	

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/629,915

Applicant(s)

TAKEO, AKIHIKO

Examiner

Julie Anne Watko

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5, 8 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 and 12-14 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03/16/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 112***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "parameters are set" in line 11. Because it is unclear what "parameters are set", a person of ordinary skill in the art would be unable to ascertain the metes and bounds of the claim.

Claim 5 recites the limitation "the parameters include a thickness ... a distance ... and a spacing distance" in lines 14-17. Because the claim is written in open language, it is unclear how many other, non-recited parameters are set. Thus, a person of ordinary skill in the art would be unable to ascertain the metes and bounds of the claim.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, to the extent understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Funayama et al (US Pat. No. 6636390 B2) in view of Norihashi et al (JP 2000-090424), further in view of Tsuchiyama et al (JP 10-222836), and further in view of Knabe et al (JP 2001-101651).

As recited in claim 1, to the extent understood, Funayama et al show a disk drive (see Fig. 8) comprising a disk medium 13 including a substrate 10, a magnetic recording layer 12 and a soft magnetic layer 11 interposed between the substrate and the magnetic recording layer; and a magnetic head (see Fig. 1) including a read head element 6 for detecting a magnetic field from the magnetic recording layer. Regarding the "parameters are set" limitation, see teachings, rationale and motivation for combining teachings below for claim 5.

As recited in claim 1, Funayama et al are silent regarding shielding members to shield the read head element.

As recited in claim 1, Knabe et al show shielding members (see 34 and 37) to shield the read head element 35.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add shielding members to shield the read head element of Funayama et al as taught by Knabe et al. The rationale is as follows: one of ordinary skill in the art would have been

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motivated to add the shielding members in order to prevent stray flux from affecting the read head element as is notoriously well known in the art.

As recited in claim 2, Funayama et al show a system (including 8) for a perpendicular magnetic recording, wherein the magnetic head includes a write head element 8 to allow the perpendicular magnetic recording operation to be performed on the disk medium.

As recited in claim 3, Funayama et al show that the magnetic head includes a write head element 8 to allow a perpendicular magnetic recording operation to be performed on the disk medium, the write head element 8 being separate from the magnetoresistive read head element 6.

As recited in claim 3, Funayama et al are silent regarding the magnetoresistive element being arranged between the shielding members.

As recited in claim 3, Knabe et al show the magnetoresistive element 35 being arranged between the shielding members 34 and 37 (see Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the MR of Funayama et al between shielding members as taught by Knabe et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to protect the MR from an influence of stray flux as is notoriously well known in the art.

As recited in claim 4, Funayama et al show a GMR (see col. 1, lines 55-56, for example).

As recited in claim 5, to the extent understood, Funayama et al are silent regarding a thickness of the soft magnetic layer, a distance between shielding members, and a spacing distance from a surface of the soft magnetic layer to a proximal end of the magnetic head being set such that a strength of a magnetic field applied to the read head element from the soft

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magnetic layer is reduced to a value smaller than a magnitude of a magnetic disturbance field applied in a thickness direction of the disk medium.

As recited in claim 5, Norihashi et al teach that a thickness of the soft magnetic layer affects a weakness or strength of a whole film against external magnetic field (see ¶ 0055).

As recited in claim 5, Tsuchiyama et al teach that a spacing loss of a magnetic head can be set with respect to signal to noise (see ¶ 0014).

As recited in claim 5, Knabe et al teach that shielding spacing impacts jitter of a signal (see ¶ 0018).

#### ***Allowable Subject Matter***

7. Claims 8 and 12-14 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither shows nor suggests the claimed equation in combination with the claimed structure.

#### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tanaka (US PAP No. 2002/0089796 A1) shows a perpendicular recording disk drive comprising disk 101 having substrate 6, soft magnetic layer 5, crystal control layer 4 and recording magnetic layer 3; further comprising write head element 9 and read head element 8 with shield gap GS (see especially ¶ 0050, "reproduction magnetic field (leakage magnetic field) from an adjacent track"; see also ¶ 0056, "flying height FH").

Yano et al (US Pat. No. 6618227 B2) show a disk drive for perpendicular recording comprising medium 20 with recording layer 22 and soft magnetic backing layer 21, further comprising GMR 32 between shields 33 and 31, and write poles 34 and 35 (see distance  $d$  in Fig. 3).

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (571) 272-7597.

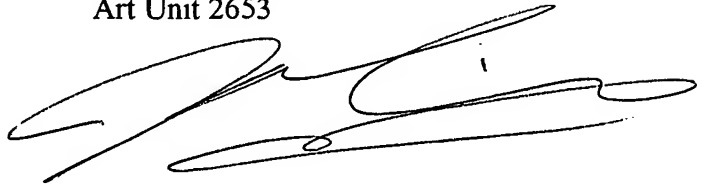
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The examiner can normally be reached on Mon, Tue, Thu & Fri until 4:45PM, Wed until 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Julie Anne Watko  
Primary Examiner  
Art Unit 2653

October 7, 2005  
JAW

A handwritten signature in black ink, appearing to read 'Julie Anne Watko', with a stylized, flowing script.